Testimony of
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Mr. Chairman, Representative Waxman, Members of the Committee, thank you for the opportunity to appear before you today to discuss the state of U.S. competitiveness in the increasingly global 21st century economy.

As Chairman and CEO of AMD, this is an issue of particular interest, both to me personally as well as to the semiconductor industry as a whole. I believe AMD's commitment to continuous innovation and the pursuit of fair and open competition makes it particularly well-suited to serve as an example of how U.S. companies must adapt in order to compete in this newly globalized, some would say "flat," world.

Based in Sunnyvale, California, AMD is leading the world in the design and production of products that lie at the heart of today's technology-driven economy. In countries around the globe, AMD microchips power everything from supercomputers and industrial servers to laptop PCs and cell phones.

AMD is based in the U.S., but we truly are a global company. Our products are produced and sold all over the world. We employ thousands of the brightest scientific minds, both in America and abroad. And the research we conduct in facilities around the globe constantly challenges the frontiers of scientific knowledge.

As I share the experience of AMD with you today, I want to address the fundamental actions that I believe this nation must take in order to ensure that we retain our technological lead so that we can continue to compete in the 21st century economy.

Most importantly, I want to leave you with three key thoughts – what I believe to be the three keys to further enhancing American competitiveness in this increasingly "flat" world:

1) <u>You can't have competitiveness without competition;</u>
2) <u>Government procurement is competitiveness policy in action;</u> and
3) <u>Investing in education is building competitiveness for the future.</u>

I am proud of the contribution AMD's innovation leadership continues to make toward enhancing U.S. competitiveness. But, I also am keenly aware that the world is changing. I have witnessed this first-hand.

Past performance is no guarantee of success in the future. The same business models and government policies that propelled America to the top and helped build the world's greatest economy in the 20th century could hold it back in the 21st century.

We cannot allow this to happen.

New times require new ideas and new ways of doing things. America must adapt to the changing world and recommit itself to achieving the technological leadership that will fuel the 21st century economy. And make no mistake, we must do so now – the need is, indeed, urgent.

While America maintains its preeminence in the world economy, it's no secret that the global playing field is being leveled. There is mounting evidence that other nations are better prepared and more motivated to compete in this new economy.

China, which has overtaken the U.S. as the world's largest exporter of high-tech products, now graduates four times as many engineers as the United States. Japan graduates twice as many and South Korea the same number as the U.S., despite the fact that they have one-sixth of our population.

China has more than doubled its R&D investment in the last decade, while the U.S. Congress has repeatedly cut back federal investment in technological research and development. What's more, many foreign governments offer favorable tax structures and other financial incentives to companies which conduct their research and development in their nations, while the U.S. has made no significant effort to reform tax policies in order to attract and retain such business. Foreign-owned companies and foreign-born inventors now account for nearly half of all U.S. patents. And even more frightening in the context of all of these statistics, U.S. 12th graders recently performed below the national average of 21 countries on a test of general knowledge of math and science.

Clearly, we must take action now to correct this imbalance before the economic scales are permanently tipped against us and we are no longer able to compete on a global scale. We cannot afford to be complacent. Nor do we have the luxury of time to spend blaming others. We must come to terms with just how competitive – and how quickly so – the rest of the world has become. And we must recognize that losing our competitive edge is as much a threat to national security as it is to economic vitality.

In this regard, let me emphasize one critical point: Although we must benchmark ourselves against other economies – just as competitive companies benchmark themselves every day against their competition – the world economy is not a zero-sum game. I firmly believe that the United States must work hard to be as competitive as it can be. But we should welcome, as well, other nations when they make themselves more competitive. The way to sustain our own economy is to encourage others to compete, rather than try to hold them back. More than that, economic growth can bring stability to a world with all too much unrest and violence.

Thus, we must understand that in confronting this challenge there is also tremendous opportunity – opportunity both to grow our economy while also enriching the lives of all of the world's people.

I. The Three Keys to Competitiveness

While the United States must examine and address our basic public policy needs as a nation in order to compete and lead in the 21st century economy, I believe we must first and foremost understand that a competitive society is not based only on the creation of a research-based infrastructure, as critical as that may be.

That is why I want to emphasize this morning three parts of society that, although often seen as beyond the scope of competitiveness policy, are actually fundamental to its success.

The principles which make up "The Three Keys to Competitiveness" are:

1) **You can't have competitiveness without competition;**
2) **Government procurement is competitiveness policy in action; and**
3) **Investing in education is building competitiveness for the future.**

I will address these principles in order.

First, you can't have competitiveness without competition. All the investment, research and specialized education in the world won't amount to a growing, dynamic economy without healthy competition that invites and rewards innovation by many – not just a few.

Consider the Internet as an example. Federal support was critical to its creation. But competition was fundamental to its success. As we have learned over the last decade, vibrant competition allows consumers to choose between winners and losers. Google wasn't always the leading search engine – both AltaVista and Ask Jeeves got there first. But Google developed better technology and was able to bring that innovation to customers because the marketplace was open to new and better choices, not unfairly controlled by entrenched incumbents.

In other words, the triumph of the Internet is really a triumph of fair and open competition.

We know that our ability to compete and lead in the 21st century economy depends upon our ability to innovate. Companies that fail to embrace innovation as a core business value will fall to global competitors that do.

Innovation enables sustained economic growth, allowing us to take and maintain the lead. And competition is the heart and soul of innovation. Because innovation happens when we feel like we have no choice but to think and act in new and different ways, to take risks to achieve audacious goals.

Competition drives us to push past old limits, to extend our vision beyond what we believe to be possible. It pushes us to achieve something greater. And it is competition that turns innovation into the real price and performance advantages for consumers and citizens that allow us to compete on a global scale. We need competition in order to drive us to think outside the box.

Fair and open competition is a necessity for our shared success. And we have a responsibility to ensure no one is sheltered from competition. Everyone – every company and every nation – deserves an equal chance to compete and succeed on the merits of the innovation they offer the world. That means that enforcement of antitrust laws and adherence to accepted standards of market conduct are critical to the creation of a sustainable competitive society.

As a society, we must follow the standards designed to promote competition and encourage innovation. We must support open standards in technology.

In both the public and private sector, competition – not protection – is the answer. And the United States must serve as an example for the rest of the world in promoting free trade and protecting fair and open competition.

That brings me to the second key to competitiveness: Government procurement is competitiveness policy in action. Just as the United States will serve as an example for fair and open competition to the rest of the world, we must ensure that our public sector serves as an example for our private sector.

This is especially important in technology contracts. AMD recently commissioned a study by R. Preston McAfee, the J. Stanley Johnson Professor of Business, Economics and Management at the California Institute of Technology, which found that during the calendar year of 2004 approximately 69 percent of federal procurement solicitations for computer hardware posted on the federal online service *FedBizOpps.gov* contained language that either required the use of a specific brand of microprocessors or specified that the processor should be equivalent to that brand-name model microprocessor. Further economic analysis from that study, the results of which were released yesterday, shows that the federal government and U.S. taxpayers likely would have benefited from approximately $281 million to $563 million in total present-value savings by adopting vendor-neutral contract specifications based on performance benchmarks. Brand name specifications prevent federal procurement officers from choosing the best product to fit their demands and ultimately places at risk the quality and suitability of government purchases. And such limited choice leads to higher prices for federal agencies and American taxpayers.

At a time when we are faced with budgetary belt-tightening across the board, any fiscal conservative should find this practice outrageous. And it must end. We must ensure that our own government contracts favor the best technology at the best price, rather than a

single company or the best-known brand. That is the best deal for our taxpayers and it is the best example for our nation – and other nations.

Indeed, open government procurement contracts should be a central goal of our trade negotiations with other nations, so that their public sectors may serve as similar examples in support of fair and open competition and innovation. In fact, we believe that the United States Trade Representative should make fair and open procurement a key objective of international negotiations.

The final key to ensuring U.S. competitiveness is one which is of great personal importance to me: Investing in the improvement of our K-12 education system. Too often we think of competitiveness policy only in terms of graduate and specialized education. But, I know from my own experience, that our entire educational system is critical to competitiveness.

As a teenager growing up in a small village in Mexico, America beckoned to me as the land of opportunity. Each day, I walked across the border to attend high school in Eagle Pass, Texas, knowing I was on a path toward a better future. Education was my opportunity – the key to unlocking my full potential.

But far too many of today's children do not have that same opportunity I enjoyed. With a public education system that consistently falls behind those of other nations in the world, we are failing our children right here at home in the most fundamental way. We have a responsibility to them and to future generations to ensure that America remains the land of greatest opportunity.

That begins with making a conscious and considerable investment in improving our K-12 education system. And while math and science education are critically important, especially in this new technology-driven economy, I firmly believe we must focus on improving our entire education system across all subject areas.

This is crucial to our ability to compete in the global economy for so many reasons, not the least of which is the fact that companies will be compelled to go where the talent is. We must make every effort to attract, educate and retain the very best and the brightest in the world, nurturing talent in America from a very young age.

I take this issue very seriously, and AMD has dedicated significant resources to improving K-12 education in the communities in which we operate. In 2004, AMD invested more than $717,000 in educational institutions and programs in the communities surrounding our domestic and international sites. And we donated another $1.5 million to engineering programs at universities throughout the U.S. We are a founding sponsor of GirlStart, an Austin, Texas-based non-profit aimed at educating and empowering girls ages nine through fifteen by encouraging their interest in math, science and technology. AMD scientists and engineers also volunteer as science fair project advisors to Sunnyvale, California-area middle-schoolers through the Science Buddies online mentoring program. And since great teachers are key to successful learning, AMD also

funds programs aimed at developing and supporting effective classroom instruction, through programs like Sunnyvale's Industry Initiatives in Science and Math Education which provides hands-on experience in the high-tech workplace for science and math teachers that can be translated back into the classroom.

In addition, we've partnered with local community colleges, like Austin Community College, in developing Semiconductor Manufacturing Program scholarships to train new workers in our field. And in 2004, we devoted $7.8 million to training our current workforce and offered $1.4 million in tuition reimbursement to employees seeking to further their education.

These are just a few of the many examples of the ways in which AMD has dedicated itself as a company to this principle. We see it as more than a chance to give back to our communities and employees – it's another way in which we can contribute to competitiveness, both in the United States and globally.

II. Actions Fundamental to U.S. Competitiveness – Investment, Talent and Infrastructure

While competition is the linchpin of competitiveness, we cannot ignore our basic needs as a nation. It is important that we identify the areas in which our current policies and business practices are lacking in the context of the new economy. If we are to ensure U.S. competitiveness in the 21st century, we must take action in critical areas of need: investment, talent and infrastructure.

Indeed, President Bush took a bold step to address these issues when he announced the "American Competitiveness Initiative" in his State of the Union Address. AMD applauds the president's efforts to elevate competitiveness to the forefront of the national public policy agenda.

The United States Congress also took an important step in the right direction in December, when Senators Ensign and Lieberman, along with 22 co-sponsors, introduced bipartisan legislation entitled the "National Innovation Act of 2005." Allow me to take this opportunity to voice AMD's wholehearted support for the measures provided for in this bill – measures aimed at investing in a future built upon innovation and competition and measures which, if enacted, will ensure American competitiveness well into the 21st century.

The first area of critical need in which the U.S. must take action in order to retain its competitive advantage is investment, and more specifically, investment in the research and development of technology.

Many believe microprocessors to be the fuel powering the technology that is driving the 21st century economy. In today's world, technology is pervasive – no company, no

country and no citizen is untouched. Technology is the great equalizer of the 21st century, changing all of the rules by allowing countries to rapidly increase their competitive edge.

It is for this reason that we must ensure that the federal investment in research and development is re-focused on technology and exploring and challenging the frontiers of knowledge. While private companies like AMD devote a large portion of our revenues to research and development of new technologies, we cannot place enough emphasis upon the importance of federally-funded R&D. Federal funding for research and development, in large part, goes to the long-term basic research projects that pose too high of an investment risk to private companies because they may not produce a return on investment for decades.

It was federally-funded R&D that gave us the Internet, fiber optics, global positioning systems and nanotechnology, just to name a few world-changing innovations. And these are the types of breakthroughs that are critical to our future competitiveness, because they improve lives, create new jobs, open new markets and contribute to the entire nation's economic vitality. It is critical that this type of research continue. That is why we support measures which encourage federal agencies to allocate a greater percentage of their R&D budgets toward high-end innovative research, as well as proposals to significantly increase funding for the basic research conducted by the National Science Foundation.

In addition, we support the proposal to expand and make permanent the Research and Development (R&D) tax credit, thus making it easier for private companies to engage in long-term research projects. Other nations are offering more and more incentives to draw research and development to their shores. Only by making the United States an attractive location for research and development, can we continue to lead the world in this critical area.

The second area of need which is fundamental to ensuring U.S. competitiveness in the technology-driven economy is talent. If we are to not only compete, but lead, in this new economy, we must increase our base of homegrown talent in science and technology.

The statistics are staggering. China and India alone graduate 6.4 million from college, over 950,000 of which are engineers, while in the U.S. only 70,000 engineers are among the 1.3 million who graduate from college each year. More than 50 percent of our current science and engineering workforce is approaching retirement. All while the percentage of American high school seniors who plan to pursue a degree in engineering is down 30 percent from a decade ago.

If the United States does not take action to change these statistics, there is no doubt in my mind that it will lose its global reputation for "American ingenuity."

Our schools must be second to none. We must continue to attract the best and the brightest. And education must continue; we must be constantly training and preparing our workforce for what is on the horizon. It is important that we begin to develop and

implement practices – new ways of doing things – that allow us to utilize the new technologies which are the fruits of our innovation to our advantage.

The first step toward accomplishing this tremendous task is addressed in the National Innovation Act through increased funding of advanced degree and training programs in the sciences, technology, engineering and mathematics. AMD supports this, along with provisions which address the need to balance our competitive needs with national security concerns and make it easier for foreign-nationals educated and trained in the U.S. to remain here and continue their research and contribution to the U.S. economy.

The final area of fundamental need captures many smaller needs into the broader category of infrastructure. It is critical that the U.S. develop an "innovation infrastructure" to support and encourage innovation in both the private and public sectors. Public policies related to education, training, research and development, taxation, intellectual property, immigration, competition and market access all impact the ability of the private sector to innovate. The United States must aim for policies that stimulate maximum creativity and provide for free trade and fair and open competition, rather than policies which only provide for narrow benefits to one nation or one company.

We must carefully re-examine well-intentioned policies which, nonetheless, stifle and discourage innovation. AMD supports efforts to create a regulatory environment in this nation that rewards innovation and entrepreneurship. It is imperative that the American regulatory system be streamlined and responsive to businesses. That is why we strongly favor the renewal of the Paperwork Reduction Act.

AMD also supports the National Innovation Act provision for the creation of the President's Council on Innovation, with the purpose of developing a comprehensive agenda to promote innovation in the public and private sectors. Maximizing our "innovation infrastructure" to allow for greater competitiveness must be an ongoing conversation between public and private entities – no one side and no one player can dictate a blueprint for progress to the others.

III. Competing in an Increasingly "Flat" World

AMD is a company which has confronted and continues to face the challenges of competing in the new global economy of the 21st century. And I believe our experience is instructive for finding solutions that will allow us to better compete as a nation in the "flattened" world.

While AMD is based in the United States, we truly are a global company whose products are manufactured and sold all over the world. Our microprocessors are built in our state-of-the-art manufacturing facility in Dresden, Germany. We have research and development facilities in the United States as well as other countries. And we have sales and marketing centers across the globe.

As I said before, world trade is not a zero-sum game. That is why the United States should encourage and support developing economies. There's an old saying, "A rising tide lifts all boats." With the proper policies in place, the entire world ultimately stands to benefit from increased competition from America and other nations.

In this new global economy, collaboration is central to achieving this goal. That means collaboration among academic, business and government leaders in this nation. And it means collaboration among these same leaders in the U.S. and those leaders in other nations. It's just another form of innovation.

Recognizing that the private sector has a responsibility to lead this charge, AMD has already begun to form these kinds of collaborative partnerships with leaders around the world.

We've invested a great deal in our "50x15 Initiative," a commitment to empower 50 percent of the world's population with affordable access to the Internet by 2015. Today, that number is less than 15 percent, so we clearly have a great deal of work to do in the next decade. But I believe we can accomplish this goal. And perhaps more important to our company and the issues of maintaining U.S. competitiveness in the 21st century economy, I am saying we must.

AMD is developing new technologies and solutions that will make Internet access and computing capability affordable and accessible in places that are presently far removed from its promise. The first step has been the development of our Personal Internet Communicator, or PIC, which provides instant Internet access to first-time technology users. It's a sophisticated product, but it sells for only about $250, including the monitor. Without having any familiarity with computers, people in lower-income and remote locations can – within minutes – access endless amounts of information, stay in touch with family members, and search the web from their home.

In Brazil, Russia, China, India, and my native Mexico, our goal is to connect billions of people with the chance the Internet provides to learn about the world, communicate with others, and become part of a growing economy. We are bringing hope and possibility to places that have not been simply left behind, but completely left out.

Yet, I don't need to tell anyone in this room, that we would not be around for long if this initiative were about charity. It is not. It is central to our business strategy for the future. Because, while we are connecting people in the developing world to greater opportunity, we are also building long-term relationships with infrastructure providers, government institutions, and consumers themselves. And that will reap benefits for years to come.

AMD is also partnering with Google, Samsung, and Nicholas Negroponte of MIT Labs, among others to deliver on the promise of an initiative we call "One Laptop Per Child." AMD is a founding partner in this initiative, and we are directly involved in the development of the notebook computer central to its mission of providing Internet access to all of the world's children.

Through each of these initiatives, AMD is entering markets that have never been tapped. It's a risk, but we're confident the return that results from giving people the tools they need to participate and succeed in the new economy will pay off in the end.

AMD is proud to being doing our part to encourage fair and open competition, to foster innovation and to enhance competitiveness in the 21st century global economy driven by technology.

But our long-term success is dependent upon policymakers taking the steps that will allow us to continue to do these things and build upon what we have accomplished so far.

The only way for any of us to succeed in this new economy is through innovation. Constant, tireless innovation in technology, in business models, in education and in public policy. We must have the policies in place which allow us the flexibility to continually reinvent ourselves and the goods and services we have to offer in response to the ever-changing world in which we live.

From the very beginning of our history, this nation has been about discovery – about finding new beginnings and challenging frontiers. We are still the world's leading economy, home to a wealth of venture capital, many of the world's finest research labs and universities and a culture uniquely supportive of risk-taking.

Now, we must honor our history and rise to meet the challenge presented by the 21st century, and in so doing capitalize upon the incredible opportunity that comes with it to improve the lives of all of the world's people along with our own.